Performance of 802.11 Wireless LAN Technology

This information is provided to help 802.11 Wireless LANs users best utilize the technology.

802.11 operates in 2.4GHz spectrum, an unlicensed radio frequency spectrum. This means that anyone can broadcast on that frequency spectrum and interfere with another's communication. 802.11 technology is also line-of-sight. Objects interfere with signal transmission. Additionally, a signal bouncing off surfaces can cause multiple signal paths to wireless equipment, degrading the quality of communications.

One can control and optimize the operating frequency of an 802.11 Wireless LAN. However, anyone can install a wireless system nearby on the same frequency—interfering with, degrading or overriding your system.

The challenge with 802.11 technology is that one never quite knows what is causing a system degradation without performing a technical evaluation of the frequencies in the surrounding area while the user experiencing degradation is attempting to use the system.

Wireless Internet Service Providers, businesses, government agencies, etc. are installing wireless networks throughout every community. This proliferation of systems signifies increasing interference and disappointed wireless users.

The 802.11 Wireless LAN performance issues are similar to those of cellular or PCS phone users' experiences. The movement of a wireless device just a few inches in weak signal areas can mean the difference between acceptable reception and loss of signal. The fact that a wireless device worked yesterday in a particular location does not mean that it will tomorrow—and, is likely not an indication that the wireless equipment failed.

This information is provided to prepare wireless users and prospective wireless users for performance issues that are not completely predictable or controllable. Tuning and troubleshooting support for 802.11 performance problems will be encountered.